



Assembly Technologies

Socket Tray User Manual

Models QA1S0 and QA4S0



Important Safeguards

For your protection, please read these instructions completely, and keep this manual for future reference. Carefully observe and comply with all warnings, cautions and instructions placed on the equipment or described in this manual.

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Getting Started

This manual is intended to promote proper and safe use and give guidance to owners, employers, supervisors, and others responsible for training and safe use by operators and maintainers. Please contact your Stanley Sales Engineer for further information or assistance on Stanley training or assembly tool operations.

1.1 Warnings and Cautions

Definitions

The safety notices and warnings for protection against loss of life (the users or service personnel) or for the protection against damage to property are highlighted in this document by the terms and pictograms defined here. The terms used in this document and marked on the equipment itself have the following significance:

Warning - Indicates that death or severe personal injury **may** result if proper precautions are not taken.

Caution - Indicates that property damage may result if proper precautions are not taken.



- Indicates an electrical hazard. This icon appears as a part of a Danger, Warning, or Caution notice.



- Indicates a general hazard. This icon appears as a part of a Danger, Warning, or Caution notice.



- Indicates that eye protection should be worn. This icon appears as a part of a Danger, Warning, or Caution notice.



- Read and understand all the safety recommendations and all operating instructions before operating tools and controllers.



- Indicates an item of special interest.

WARNING

To Avoid Injury:

- Read and understand all the safety recommendations and all operating instructions before operating tools and controllers. Save these instructions for future reference.
- Train all operators in the safe and proper use of power tools. Operators should report any unsafe condition to their supervisor.
- Follow all safety recommendations in the manual that apply to the tools being used and the nature of the work being performed.
- Verify that all warning labels illustrated in this manual are readable. Replacement labels are available at no additional cost from **STANLEY ASSEMBLY TECHNOLOGIES**.

Qualified Personnel



WARNING

To Avoid Injury:

- Only allow suitably qualified personnel to install, program, or maintain this equipment and or system.
- These persons must be knowledgeable of any potential sources of danger and maintenance measures as set out in the Installation, Operations, and Maintenance manual.
- This product must be transported, stored, and installed as intended, and maintained and operated with care to ensure that the product functions correctly and safely.
- Persons responsible for system planning and design must be familiar with the safety concepts of automation equipment.

Installation and Setup

Devicenet and 24 Volt Socket Trays are compatible with Stanley PSI and QPM controllers and interfaces. They provide automatic program selection based on the socket in use and disable the tool in case more than one socket is picked up or all sockets are in the box.

For the 24 Volt models the above logic is managed by a custom board and the tool disable is obtained by selecting a STOP or DISABLE input, while Devicenet devices use logic managed by the Sigma / Master Alpha (refer to the specific manuals for more details on mapping and accessing Socket Tray functions from STANLEY controllers).

All socket trays use light emitting / receiving diode switches to sense the socket. The socket bushings provide accommodations for different socket dimensions.

The 24 Volt socket trays have a repeater connector that ties into the spare I/O of the controller. This allows end users to add other I/O devices to the controller without having to split the socket tray cable.

2.1 Technical Specifications

2.1.1 DeviceNet models

QPM Controllers compatibility: QA1001-MXX Alpha and QA3000 Sigma models

Controller/Interface connection: DeviceNet Master Micro Male connector.

DeviceNet Models	# Socket Positions	Connection	Dimensions mm	Dimensions (in)	Square Drive	Max Socket Diam.
QA4S04-54	4	DeviceNet	219x118x83	8 5/8x4 5/8x3 1/4	to 3/4"	54mm (2-1/8")
QA4S08-33	8		219x118x83	8 5/8x4 5/8x3 1/4	to 1/2"	33mm (1-1/4")
DeviceNet Extension Cables						
21C102101	1m	21C102110	10m			
21C102105	5m	21C102120	20m			

2.1.2 24V wired I/O models

PSI and QPM Controllers compatibility: QA1001 Alpha, QA0001 Kappa, QC1001 Theta, QC0001 Tau and PSI-C / C2 models. The Repeater socket trays pass the extra controller I/O through the socket tray so they can be used for non-socket tray functions.

Controller connection: 12 / 24V I/O

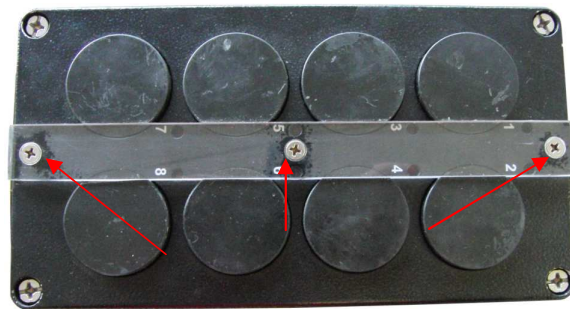
24VDC Models	# Socket Positions	Connection	Dimensions mm (in)		Cable	Square Drive	Max Socket Diam.
QA1S08-33	8	24VDC I/O Alpha/Kappa	219x118x83	8 5/8x4 5/8x3 1/4	Choose Cable Below	to ½"	39mm (1-1/2")
QA1S04-54	4		219x118x83	8 5/8x4 5/8x3 1/4		to ¾"	54mm (2-1/8")
QA1SR08-33	8 with Repeater		219x118x83	8 5/8x4 5/8x3 1/4		To ½"	39mm (1-1/2")
QA1SR04-54	4 with Repeater		219x118x83	8 5/8x4 5/8x3 1/4		to ¾"	54mm (2-1/8")
24VDC Cables for QA Alpha & Kappa Controllers				24VDC Cables for PSI-C / C2 Controllers			
20C109007	7m			20C109207	7m		
24VDC Cables for QC Theta Controller							
20C109107	7m						

2.2 Setup

2.2.1 Nylon Socket Bushing Machining

Nylon socket bushings require machining of holes to fit the sockets.

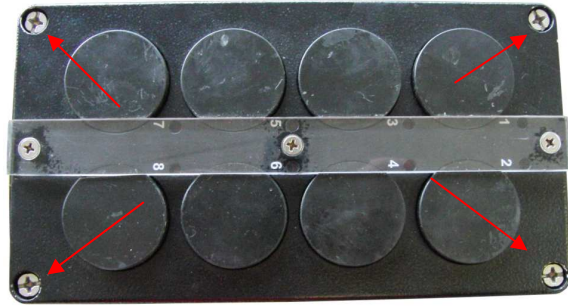
1. To remove the bushings, loosen the retaining bar screws (see arrows) with a Phillips screwdriver. Pull away the retaining bar to release the bushings.
2. Machine the bushings to achieve a loose fit around the socket diameter. Be sure to drill the hole so the socket covers the channel under the bushing to block the light emitted by one diode and picked up by the other.
3. Replace the bushings and retaining bar.



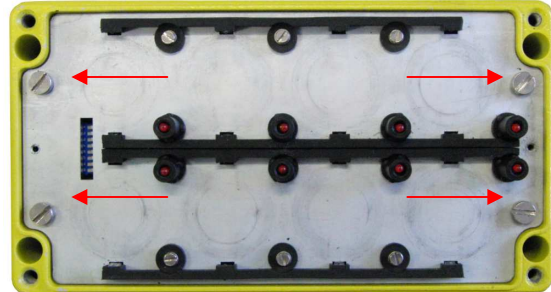
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2.2.2 DeviceNet Node Addressing (only for DeviceNet Socket Trays)

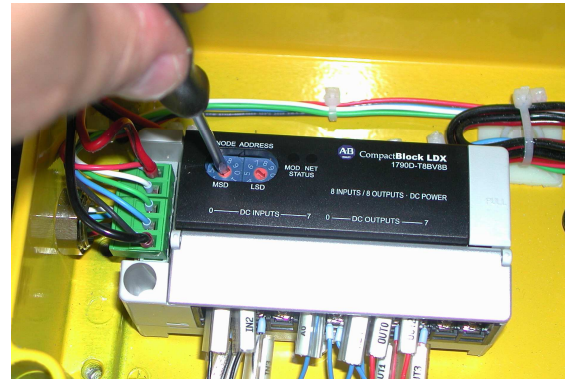
1. Remove the socket tray cover by removing the corner screws (see arrows) with a Phillips screwdriver.



2. Remove the support plate by loosening the 4 captive screws shown in picture at right with a straight screwdriver.



3. Locate the DeviceNet Compactblock. Using a small screwdriver select the desired node number (MAC ID).
4. Write the node number on the label located near the DeviceNet micro connector.
5. Replace the support plate and cover and secure the screws.

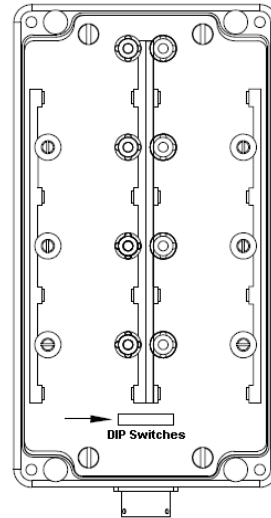


2.2.3 Programming the DIP Switch on 24 Volt models

Changing DIP switch settings is required if there are unused socket positions. It is assumed socket positions 1 through 8 are always used sequentially and the higher numbered positions would be the unused positions. The DIP switch is under the socket tray cover accessible through a slot in the support plate.

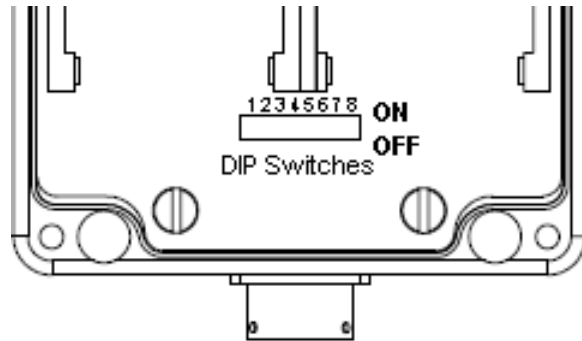
Follow these steps to change the settings.

1. Follow section 2.2.2 for cover removal. The DIP switches are located at one end of the box near the connector.



2. Use a small straight screwdriver to push the DIP switches to the on/off positions as required. Once a DIP switch is turned off the corresponding socket number is ignored.
3. Replace the cover and bushings.

The setting of the DIP switches can be changed any number of times.



2.2.4 Cable Connection

Choose the appropriate cables for the type of socket tray ordered and the type of controller with which it will be used. Connect the appropriate cable (see section 2.1) between the controller and the socket tray. Power is supplied by the controller via the cable. After the controller is turned on the socket tray will perform as indicated in section 2.3.

For socket trays with repeater connections use the 20C109007 cable to connect from the repeater connector on the socket tray to other devices. Use a mating connector or cut the connector off the end to provide connections to other devices. Be sure to setup controller I/O to use these other devices.

2.2.5 Controller I/O Setup

The Alpha and Kappa QA controllers and Theta QC controllers have assignable Inputs and Outputs. This socket tray requires a very specific assignment to work properly. The PSI-C has fixed Inputs and Outputs and will work with the cable specified in section 2.1.2. Setup the I/O on the QA and QC controllers according to the table below.

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24 Volt Socket Tray

QA Controller (Alpha or Kappa)				Theta QC Controller			
Inputs		Outputs		Inputs		Outputs	
L	Spare	C	Spare	3	Job Select Bit (0)	7	Spare
M	Stop	D	Spare	4	Job Select Bit (1)	9	Spare
N	Spare	E	Spare	5	Job Select Bit (2)	11	Spare
P	Job Select Bit (0)	F	Job Selected Bit (0)	6	Stop	13	Spare
R	Job Select Bit (1)	G	Job Selected Bit (1)				
S	Job Select Bit (2)	H	Job Selected Bit (2)				
T	Spare	J	Spare				
U	Spare	K					

2.3 Operation

When only one socket is removed from the tray at a time the corresponding L.E.D. will illuminate solid and the controller will switch the connected controller to the corresponding program.

When all sockets are inserted into the tray Socket #1 L.E.D. will blink continuously and the tool will be disabled.

When more than one socket is removed from the tray at a time, the corresponding L.E.D.s will blink continuously and the tool will be disabled.

When all the sockets are removed from the tray at a time all the L.E.D.s blink continuously, the connected controller is changed to Job #1 and the tool is disabled.

2.4 Maintenance

There is no maintenance required on the socket tray other than to clear debris out of the bushings when it interferes with the operation of the socket tray.

2.5 Repair

There are no serviceable parts inside the socket tray. Return the socket tray if repair is required. Contact your Stanley Assembly Technologies representative for RMA procedures.

Contacts

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